



Design Document

LittleBigPlanet

Mechanical Bits

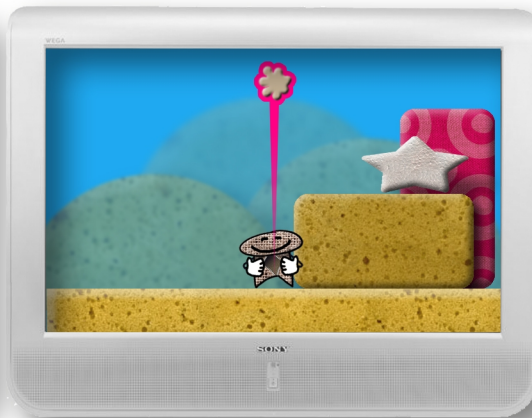
Things that allow the user to glue, bolt, add string, pistons, springs etc.

Last Updated 19th May 2007

Poppet Interface - Gluing.



Player decides it's time for some glue...



...player can move lump of glue around much like moving a sticker...



...player places it on an object by pressing 'X', which brings us out of Poppet mode.



Player now selects the object he wishes to glue to the first object...

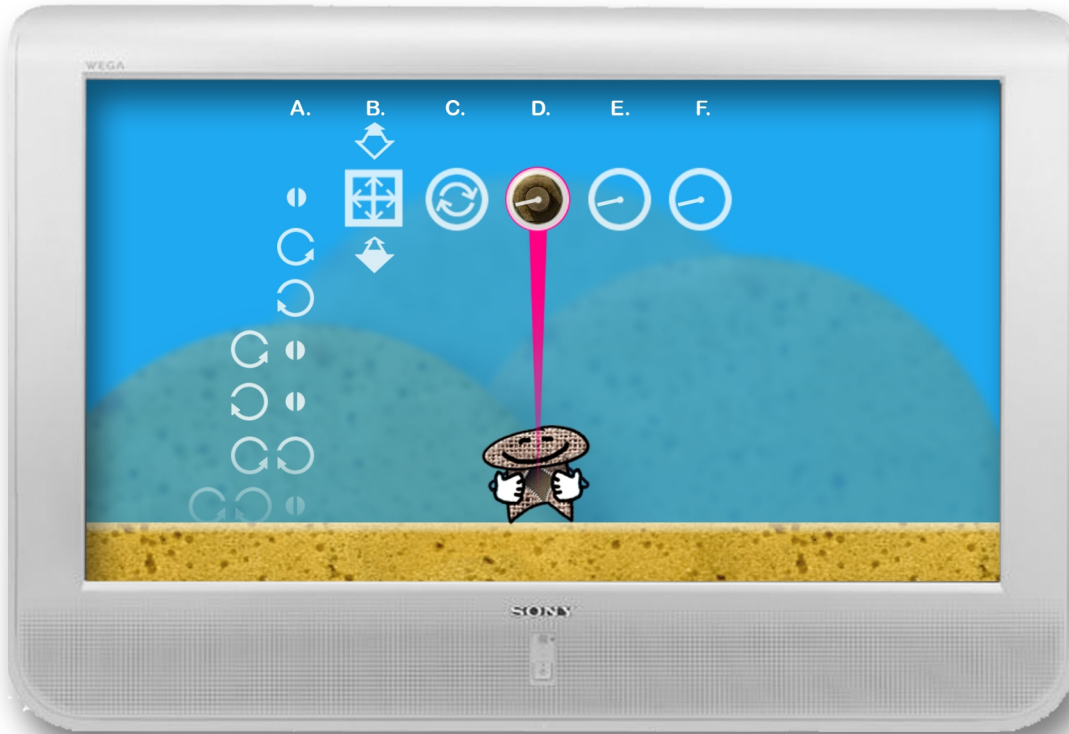


...If player places shape even partially over the glue spot, it is indicated to the player that placing it here will stick it.



Hey presto, a rigidly stuck object, complete with glue residue. Player can re-select the object and move it - the glue spot underneath get's remebered.

Poppet Interface - Pin Joints



- A. Movement type** - player can use D-Pad to scroll up and down different movement types - the default movement type (at the top) is non animated - ie a simple swivelling pin joint
- B. Move left, right, up down in and out** - ie same as moving any other object around.
- C. Rotate angle of joint** - ie - same as rotating any other object.
- D. Stiffness** - player can change how stiff the joint is, from super loose, to very stiff!
- E. Speed** - if a movement type other than default has been chosen, then this affects how fast it spins.
- F. Time** - if a non simple movement type (example spin left, then right), then this affects how long it spins before changing direction.



A simple bolt represents a non animated pin joint

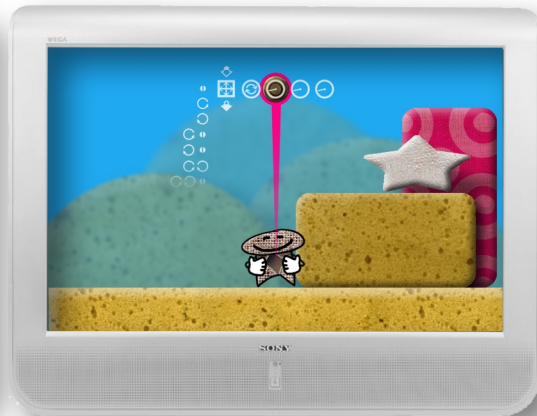


If a movement pattern is applied to the joint, it becomes a bolt with some moving cogs.

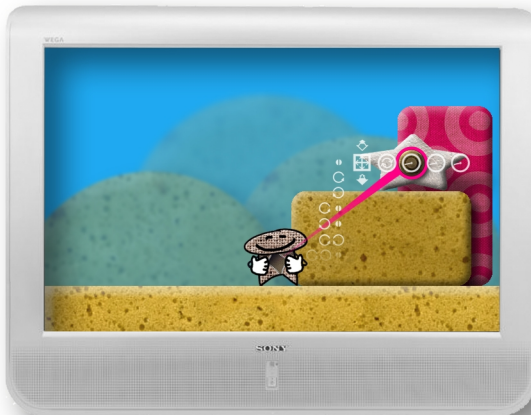
Poppet Interface - Adding a Pin Joint



Player decides it's time for a joint...



...player can move pin joint (a bolt) around like any other object, and can adjust various settings via the mini media bar..



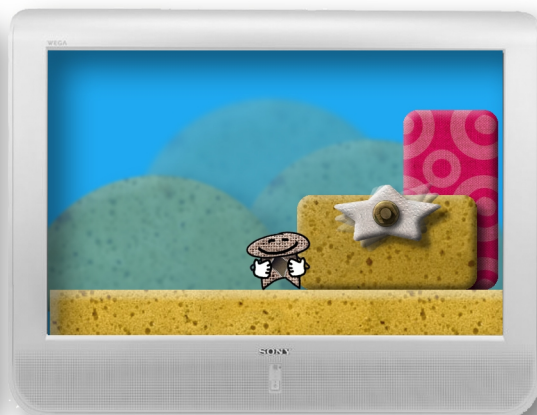
...player places it on an object by pressing 'X', which brings us out of Poppet mode.



Player now selects the object he has stuck the bolt to, and can move it around as normal, with the bolt attached...

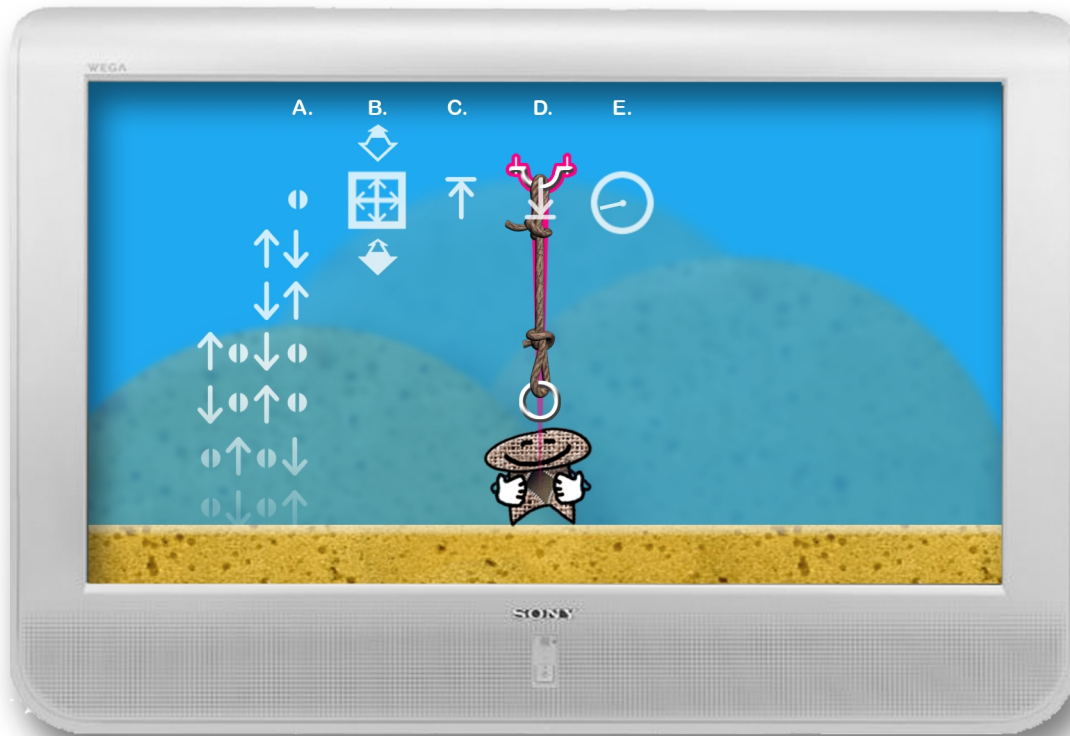


...If player places shape directly in front of another object, and there is no 'z gap' it is 'bolted' to that object...

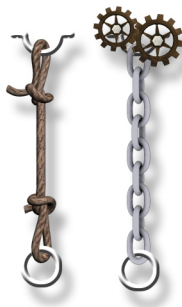


...and we now have an exciting swiveling object in our scene - The joints settings can be adjusted by reselecting the bolt.

Poppet Interface - String 'n' Chains



- A. Movement type** - player can use D-Pad to scroll up and down different movement types - the default movement type (at the top) is non animated - ie a fixed length piece of string.
- B. Move left, right, up down in and out** - ie same as moving any other object around.
- C. Minimum length** - if non default movement type is chosen, this defines shortest length it reaches - if non animated is chosen, then this refers simply to length, and following option is not visible.
- D. Maximum length** - if non default movement type is chosen, this defines longest length it reaches.
- E. Speed** - if a movement type other than default has been chosen, then this affects how fast it moves.



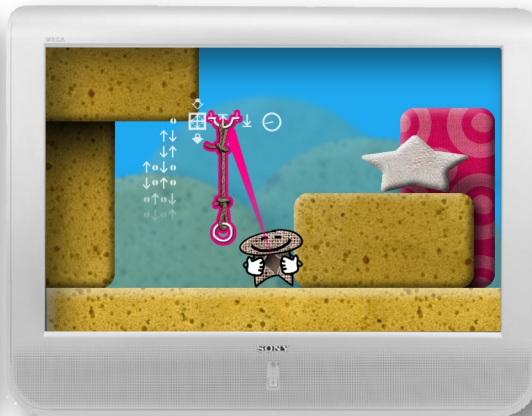
If non animated is chosen, then string is used, if an animated option is chosen, then it is represented by a chain, with a moving mechanism at one end.

At least one end must be attached - the other end, if not attached has a small loop attached (this represents that the player can grab onto it, and use it as a rope swing)
If this end is attached to an object, it automatically changes to an appropriate graphic (ie something that looks like it's screwed to the surface)

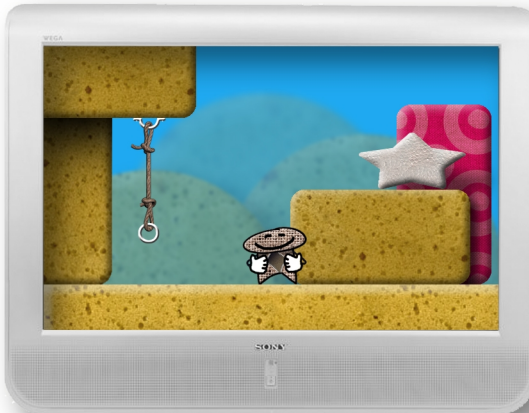
Poppet Interface - Adding some string



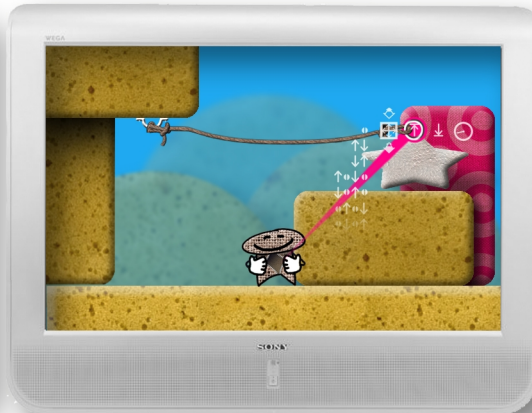
Player decides it's time for a hanging thing in the scene...



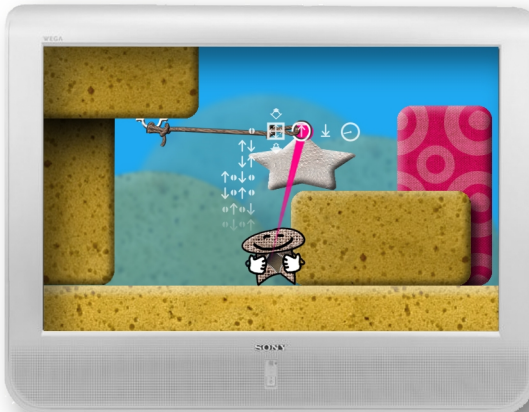
...player can move string end around like any other object, and can adjust various settings via the mini media bar...



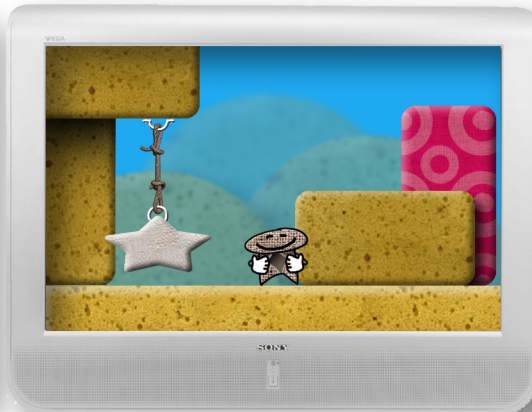
...player places it on an object (side or front) by pressing 'X', which brings us out of Poppet. Left like this, we have a simple rope swing.



Player can select the other end, move it around - which changes its length, and connect it to any other object...



...player can now adjust the length of string by using the mini media bar - and see it drag the object it is attached to...



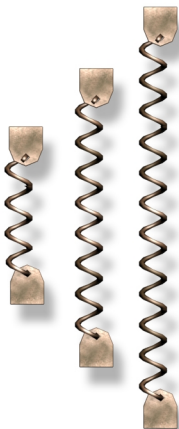
...hey presto, a nice swinging object.

Poppet Interface - Springs



A. Move left, right, up down in and out - ie same as moving any other object around.

B. Springyness - how much the spring will retain it's original length. It's biong factor.

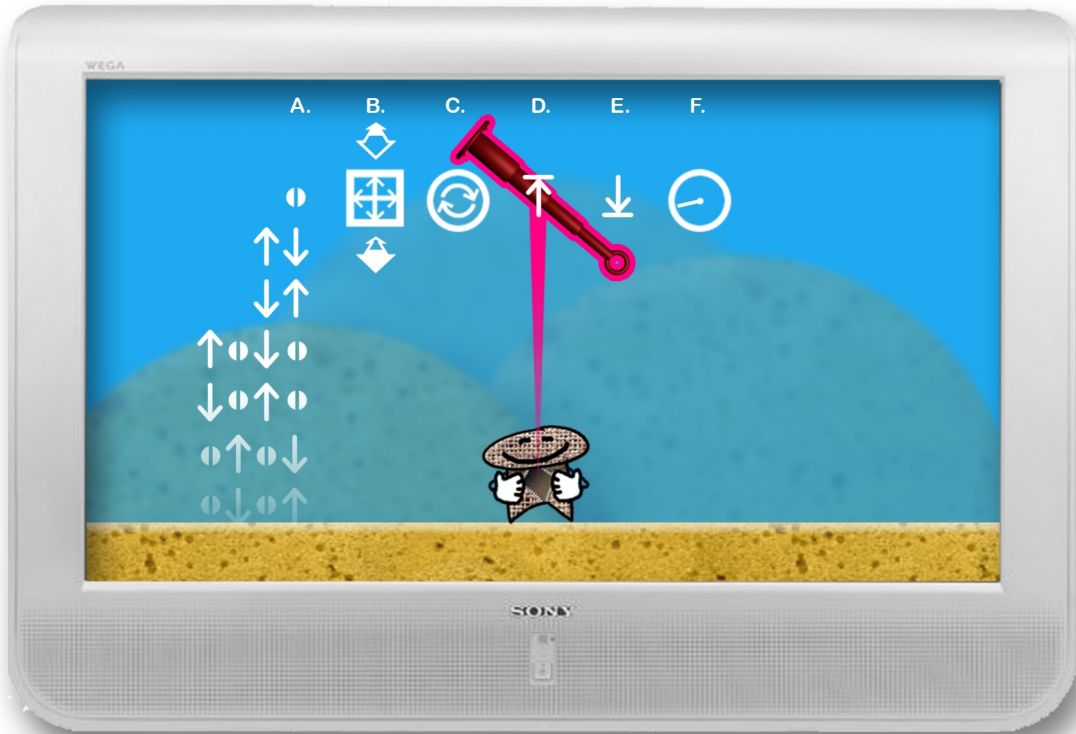


Springs are effectively the same as string, except that they have a springyness factor. Ideally, the length of a spring would be as dynamic as string - but this would require some clever procedural code to build a spring and weight it correctly, so the next best compromise i can think of is to have a selection of preset sizes (these still have the ability to stretch and compress, so you still get variation).

Springs do not have the animation options - if you want it to animate then use string!

At least one end must be attached - the other end, if not attached has a small loop attached (this represents that the player can grab onto it, and use it as a rope swing) If this end is attached to an object, it automatically changes to an appropriate graphic (ie something that looks like it's screwed to the surface)

Poppet Interface - Pistons



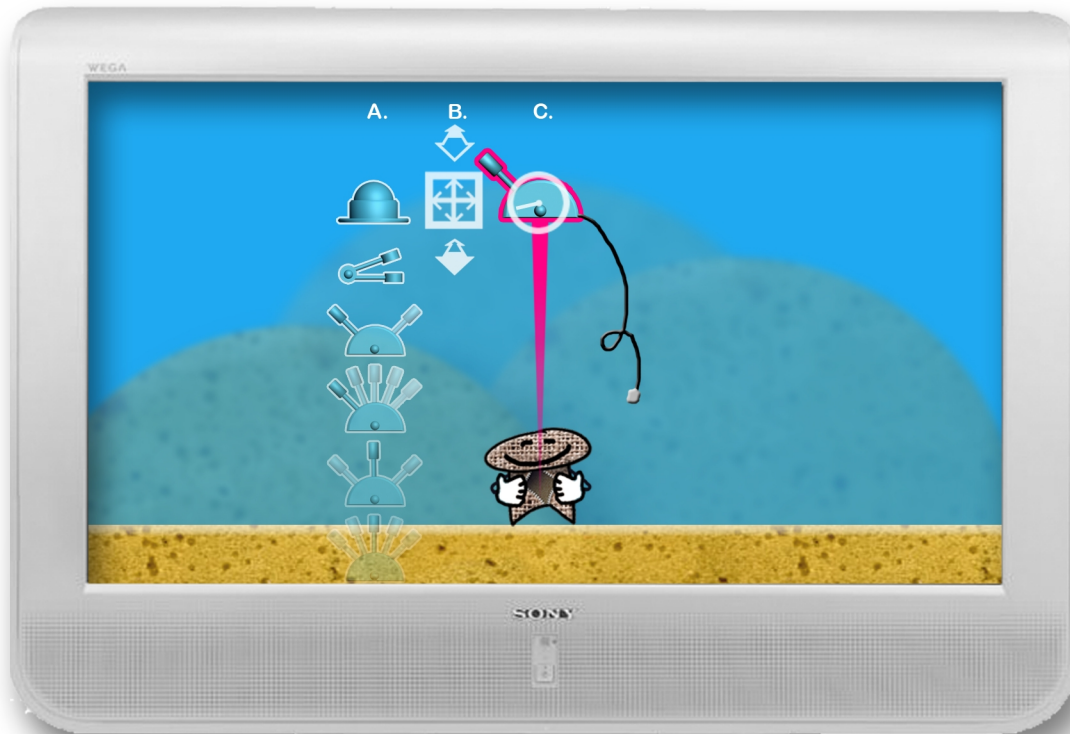
- A. **Movement type** - player can use D-Pad to scroll up and down different movement types - the default movement type (at the top) is non animated.
- B. **Move left, right, up down in and out** - ie same as moving any other object around.
- C. **Angle** - this changes the angle that the piston sticks out at it's base.
- D. **Minimum length** - if non default movement type is chosen, this defines shortest length it reaches, if default movement type is chosen, then this option becomes simply length, and the following option (max length) is not shown.
- E. **Maximum length** - if non default movement type is chosen, this defines longest length it reaches.
- F. **Speed** - if a movement type other than default has been chosen, then this affects how fast it moves.



Pistons are actually almost exactly functionally the same as string and chains, the main difference being that string will naturally hang down - Pistons can stick out at any angle, and thus be used to make pushing motions.

Like String, at least one end must be attached - the other end, if not attached has a small loop attached (this represents that the player can grab onto it, and use it to grab onto) If this end is attached to an object, it automatically changes to an appropriate graphic (ie something that looks like it's screwed to the surface)

Poppet Interface - Switches



A. Preset switch types - see below for more details.

B. Move left, right, up down in and out - ie same as moving any other object around.

C. Stiffness - how much force is need to activate the switch - a force of 1 would mean that one player, or the equivalent weight will operate the switch, a force of 2 would need two players, etc etc.



One shot - triggered by directional force, will fire off one animation loop of the thing it is connected too, to use it again, force must be removed, then re-applied.



Pressure - similar to the one shot, except all the time the force is there, the switch is on, and will animate whatever it is attached too, when force is removed, it is off.



On/Off - A simple lever, that has two possible positions, on or off.



Variable On/Off - A simple lever as before, except this time it is analogue and not digital - the stages between on and off scale the speed down of whatever it is attached too.



Directional - The same as on off, except there are three positions, Off, On forward, and On backwards - this switch overrides any animation type chosen for the thing it is attached too, and directly controls the direction. In the case of a lift or piston, the max and min lengths are respected.



Directional Variable - Same as normal directional, except the speed is scaled based on the position of the more analogue like switch.

Poppet Interface - Adding a Switch



Player decides it's time for some little switch action...



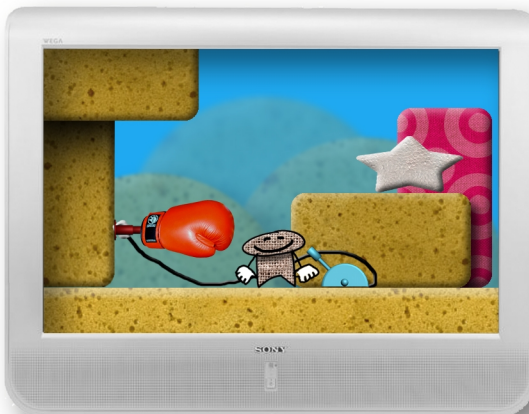
...player can move switch around like any other object, and can adjust various settings via the mini media bar...



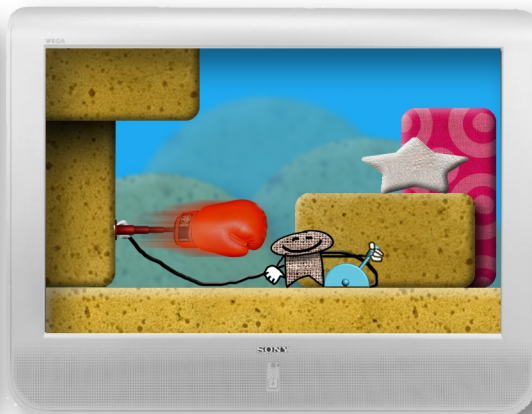
...player places the switch by pressing 'X', which brings us out of Poppet. The switch left like this has no use...



...until the player selects the connector that comes with every switch, and links it to a relevant object in the scene...



...such as this exciting piston! Every object that can be connected to a switch, has a little attachment graphic, to show it is possible.



Hey presto, a curious looking switch that visitors to this space can play with!